

ADDITIONS TO THE FLORA OF NORTH CAROLINA<sup>1</sup>

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UNTIL recent years very little work has been done on the vascular aquatic flora of North Carolina. Prior to 1860 a few collections were made by M. A. Curtis. In the herbarium of the University of North Carolina there are several collections of aquatics made in the late 1880's by Gerald McCarthy. In the herbarium of the Academy of Natural Sciences of Philadelphia are a few specimens collected in 1911 by E. B. Bartram and Bayard Long, and in the Gray Herbarium several by K. M. Wiegand and W. E. Manning dated 1927. Since 1938 R. K. Godfrey of North Carolina State College has collected many specimens of aquatics while making general plant collections over the state.

For the past two years I have been collecting and studying the vascular aquatics of North Carolina. During the course of this work I have found twelve species of plants which, so far as I know, have not been recorded previously from the state. Eleven of these are vascular aquatics. Most of the distributional data for these new records are based on my collections of 1949 and 1950. Range data have been obtained also from a study of specimens in the following herbaria: Gray Herbarium, the Herbarium of the New York Botanical Garden, the United States National Herbarium, the Herbarium of the Academy of Natural Sciences of Philadelphia, Duke University Herbarium, North Carolina State College Herbarium, and the Herbarium of the University of North Carolina.

The species discussed in the following paragraphs are deposited in the Herbarium of the University of North Carolina unless otherwise indicated. The genera are arranged according to Gray's Manual of Botany, 8th Edition, 1950; the species within a genus are listed alphabetically. The general distribution data are based on that given by M. L. Fernald in Gray's Manual of Botany, 8th Edition, 1950, and by W. C. Muenscher in his Aquatic Plants of the United States, 1944.

<sup>1</sup> This work was supported by a grant from the Carnegie Foundation for the Advancement of Teaching.

POTAMOGETON CRISPUS L. Hertford County: in pool at Smith-Douglas Fertilizer Plant on Meherrin Road, near Murfreesboro, June 10, 1949, *L. A. Whitford 108* (N. C. State College Herb.); McDowell County: small stream at State Fish Hatchery, north of Marion, June 8, 1950, *Radford 5281*; Wilkes County: Yellow Jacket Lake, 1 mile southwest of Moravian Falls, September 5, 1949, *Radford 4969*.

Introduced from Europe. Previously reported from Virginia, Tennessee, northeastern and north central states, and as far west as California.

NAJAS GRACILLIMA (A. Br.) Magnus. Jackson County: boggy margin of Cashiers Lake, August 2, 1949, *Radford 4764*; McDowell County: Lake Tahoma, near N. C. Rt. 80, August 1949, *Radford 4870*; Orange County: University Lake, near Chapel Hill, September 23, 1950, *Radford 5480*.

This species is local in the northeastern states and infrequent in the north central states. The range is extended southward from Virginia. It is rather abundant in both Lake Tahoma and University Lake. At Cashiers Lake it was discovered in a collection of *Nitella*. Subsequent search for it at Cashiers in 1950 failed to reveal it.

LOPHOTOCARPUS SPONGIOSUS (Englm.) J. G. Sm. Hyde County: mud flat near causeway on south side of Lake Mattamuskeet, July 4, 1950, *Radford & Huneycutt 5392*.

Fernald, 1950, reports this species as growing on tidal mud of brackish estuaries from New Brunswick to Virginia. I found a few specimens rather widely scattered over the mud flats of Lake Mattamuskeet. This is a shallow fresh water lake only a few miles from Pamlico Sound. An old canal extends from the lake to the sound.

WOLFFIA PAPULIFERA C. H. Thompson. Perquimans County: pool in cypress swamp south of Newhope, July 7, 1950, *Radford & Huneycutt 5452*; pool in cypress swamp near Perquimans River, 1½ miles southeast of Newhope, July 7, 1950, *Radford & Huneycutt 5462*.

This species was originally discovered in Missouri, and until recently was unknown outside the central states, according to Muenscher, 1944. Fernald, 1950, reports it as occurring locally from Virginia to Illinois, Kentucky, Missouri, and Kansas. D. L. Jacobs has reported it from Florida (*Amer. Midl. Nat.* 42: 110-111. 1949). It was very abundant in the two densely shaded cypress pools in Perquimans County where it was growing with *Wolffiella*, *Lemna*, *Spirodela*, *Azolla*, and *Hydrocotyle*.

ANEILEMA KEISAK Hassk. New Hanover County: south side of Smith Creek, near Wilmington, August 12, 1948, *Neil Hotchkiss* (Duke University Herbarium); Orange County: muddy inlet on University Lake, near Chapel Hill, September 23, 1950, *Radford 5479*; Vance County: small lake on Ruin Creek, near U. S. Rt. 58, 5 miles west of Henderson, October 10, 1950, *Radford 5482*.

Fernald, 1950, records this introduction from eastern Asia only from the fresh water tidal marshes and shores of southeastern Virginia. I found it flowering and fruiting abundantly in University Lake in the Piedmont on September 23.

EICHORNIA CRASSIPES (Mart.) Solms. Anson County: overgrown pool in Polkton, August 19, 1949, *Radford, 4919*.

Small (Manual of the Southeastern Flora. 1933) gives the distribution of this species from Georgia and Florida to Texas on the coastal plain. It was introduced at Polkton by a garden club member several years ago. It seems to be able to withstand the North Carolina winters. Dr. H. R. Totten, Professor of Botany at the University of North Carolina, has reported seeing water hyacinth in full flower in a large lake in the town of Bladenboro in southern Bladen County in September, 1950. Dr. D. G. Frey, Professor of Hydrobiology at the University of Indiana, has pictures of it growing in a large lake near Lumberton, North Carolina. Apparently it is becoming well established in the southeastern part of the state.

HOSTA VENTRICOSA (Salisb.) Stearn. Tyrrell County: edge of swamp near U. S. Rt. 64, 5.5 miles west of Ft. Landing, July 4, 1950, *Radford & Huneycutt 5405*.

This is the only non-aquatic vascular plant reported in the present paper. It was well established on the roadside near a swamp. Fernald, 1950, reports it as being naturalized from eastern Asia. It has become established in New Jersey, Pennsylvania, Delaware, and Maryland.

NYMPHAEA FLAVA Leitner. Johnston County: pool 2 miles east of Pine Level, near U. S. Rt. 70, June 12, 1949, *Radford & Browne 4413*; Perquimans County: Perquimans River near Hertford, July 23, 1949, *Radford 4684*.

Muenscher, 1944, gives the distribution of this species from Texas to South Carolina, most common in the Gulf States. Our collection extends its range northward from South Carolina.

NELUMBO NUCIFERA Gaertn. Anson County: overgrown pool at Polkton, August 19, 1949, *Radford 4917*; Wake County: drained pond along roadside, 4½ miles south of Durham County line, near N. C. Rt. 55, July 9, 1949, *Radford 4547*.

This introduction from Asia seems to be well established in a small drained pond in Wake County. Apparently the dam of this pond has been out for several years, but flowing springs furnish enough water for luxuriant growth. Some of the leaves were 24 inches across. At Polkton the owner of a small fish pond tossed into the water some of the rhizomes that his wife had obtained at a garden club meeting. In less than two years he had a *Nelumbo-Eichornia* garden and no fish pond.

ELATINE AMERICANA (Pursh) Arn. Jackson County: Cashiers Lake, August 2, 1949, *Radford 4755*.

My collection of this species in the cool clear mountain lake in Jackson County extends its range southward from Virginia. Fernald, 1950, reports it from New Brunswick and Quebec to eastern Virginia, also Missouri and Oklahoma. Only 15 to 20 plants were noticed at Cashiers in 1949. A thorough search of the lake the following year revealed only 4 plants.

MYRIOPHYLLUM BRASILIENSE Camb. Anson County: overgrown pool at Polkton, August 19, 1949, *Radford 4918*; Clay County: small pool 12 miles east of Hayesville, near U. S. Rt. 64, August 5, 1949, *Radford 4805*; Durham County: small pond near N. C. Rt. 264, 0.3 mile west of Wake County line, May 13, 1950, *Radford 5108*; Henderson County: drained pond 3½ miles south of East Flat Rock, August 9, 1949, *Radford 4851*; Lee County: pool near junction of U. S. Rt. 15-501 and U. S. Rt. 1, July 2, 1949, *Radford 4544*; New Hanover County: Greenfield Lake, Wilmington, June 29, 1938, *R. K. Godfrey & B. W. Wells 4817* (N. C. State College Herb. and U. S. Nat. Herb.); Orange County: University Lake, near Chapel Hill, March 30, 1947, *E. E. Hueske*; Pitt County: sandy ditch near N. C. Rt. 33, 3 miles east of Pactolus, July 22, 1949, *Radford 4569*; Richmond County: Falling Creek at Rockingham, June 19, 1949, *Radford 4505*; Wake County: Boone's Pond, north of Raleigh, June 2, 1948, *L. A. Whitford* (N. C. State College Herb.)

This is an introduced species from South America with scattered distribution in the United States. It was first collected in North Carolina by R. K. Godfrey and B. W. Wells near Wilmington in 1938. During the past ten years it has spread rapidly over the coastal plain and piedmont sections of North Carolina, much more so than the collection data would indicate. I have one collection from the mountains, but so far I have not found it

widespread in that section. Since the end of World War II thousands of fish ponds have been built in this state. Parrot's feather has spread with the ponds. Many farmers have planted it in their ponds, only to regret it later. In several localities they have had to drain the ponds and bulldoze or drag out the interwoven mass of stems and roots.

MYRIOPHYLLUM HUMILE (Raf.) Morong. Brunswick County: small pond 5 miles south of Orton Plantation, May 21, 1949, *Radford 4304A*.

My collection extends the range of this species southward from Maryland. Fernald, 1950, reports it from Nova Scotia south to Pennsylvania and eastern Maryland. This species is very abundant in many of the "Carolina Bay" pools west of the Cape Fear River between Wilmington and Southport.

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## SETARIA LUTESCENS AN UNTENABLE NAME

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IN 1914 Stuntz (in U. S. Bur. Pl. Ind. Inv. Seeds & Pl. Imp. 31: 83) published the combination *Chaetochloa lutescens* as the valid name for the common yellow foxtail which had long been known as *Setaria glauca* (L.) Beauv. (based on *Panicum glaucum* L., Sp. Pl. 56. 1753). In the above article, Stuntz contended that the binomial *Panicum glaucum* L. should be applied to the pearl millet which had been called *Pennisetum americanum* (L.) K. Schum., and he took up the name *Pennisetum glaucum* (L.) R. Br. for this species. Thus the oldest available name for the yellow foxtail, he concluded, was *Panicum lutescens* Weigel (Obs. Bot. 20. 1772). In 1916 F. T. Hubbard (in *Rhodora* 18: 232) transferred this name to *Setaria* to conform with the International Rules.

There was considerable discussion in the literature some years ago regarding the correct name for the yellow foxtail. Mrs. Agnes Chase (in *Amer. Jour. Bot.* 8: 41-49. 1921) discussed the problem in detail and concluded that the name *Panicum glaucum* L. applied to pearl millet and not to yellow foxtail.<sup>1</sup> Dr. Otto Stapf (in *Kew Bull.* 1928: 147-149. 1928) also reviewed the

<sup>1</sup> See also Hitchcock, A. S. in *Contr. U. S. Nat. Herb.* 22: 165. 1920.